

SYSTEM FOR DRAWING PATENT MAP USING TECHNICAL FIELD
WORD AND METHOD THEREFOR

Field of the Invention

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The present invention relates to a system for drawing a patent map using a technical field word, and its method; and more particularly, to a system for drawing a patent map using a technical field word, and its method, in which a patent map is drawn by calculating weight values of significant words which are gotten by removing unnecessary words from patent data, and to a record medium capable of being read through a computer which has a recording of a program to realize the inventive method.

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Prior Art of the Invention

At present, in the Republic of Korea, it was developed a software tool for drawing a patent map in a patent information system such as WIPS, and the Korean Industrial Property Office has developed a patent information analysis system (PIAS) having its similar function. Like this, in the system for processing patent information by a software method to draw the patent map, the system is connected to a patent database of a site which provides the patent information in charge or free, and automatically receives a down-load of information necessary for this patent database, namely, bibliographic

terms, the claims range, the abstract and the detailed description of the invention, etc., and stores them at the database of the already drawn patent map drawing system.

For instance, describing it more in detail, in a case of searching for a corresponding patent, for example, containing a word of a "QPSK" with a desired searching condition, namely, a searching word, by connecting with the patent database of the USPTO, a patent list containing a "QPSK" word is represented on a web site screen at this time, a patent search user clarifies the corresponding list, receives an automatic download of patent information corresponding to the patent list, and stores it at its inside database.

In the patent stored at the database of this patent map drawing system, only a needed patent is stored through a work of deleting or replacing the same patent in a series of works.

In a PIAS as one sort of the patent map drawing system, it was difficult to do a classification work by patent techniques without seeing contents of an invention in executing the classification work by the patent techniques. Therefore, it was used a method of performing a concerned allocation on the basis of technical sorts classified every patent by a user him/herself after reading the abstract or the specification of each patent. For example, there is a phase modulating method such as a phase shift keying (PSK), and herewith, in classifying, the patents concerning of the phase modulating method such as this PSK, by techniques such as a DPSK, a QPSK and an OPSK etc., the patent map having several

kinds of types can be made through the technical classification based on a desired type after reading all the corresponding specifications and executing the technical classification for respective patents one by one.

5 Therefore, there is in the conventional patent drawing system an inconvenience that a person who executes the patent map working should see the specifications one by one, which requires much time for drawing the patent map and causes a drop problem in a utility of the patent map.

10 Summary of the Invention

Therefore, it is an object of the present invention to provide a system for drawing a patent map using a technical field word, and its method, in which words for drawing a patent map are extracted by calculating weight values of significant words which are gotten by removing unnecessary words from patent data, and this extracted words are matched with patents to draw the patent map, and to provide a record medium capable of being read through a computer which has a recording of a program to realize the inventive method.

15 In accordance with an aspect of the present invention, there is provided a system for drawing a patent map using a technical field word includes a storing unit for receiving a download of patent information from at least one patent information providing site and storing it; an extractive object selection and sentence extracting unit for selecting at

least one word extraction object and extracting a sentence of
the selected word extraction object from the patent
information stored at the storing unit; a clause separating
unit for separating, in a unit of a clause, the sentence of
5 the extractive object selected at the extractive object
selection and sentence extracting unit; a word extracting unit
for counting the number of words in the sentence which is
separated in a unit of a clause at the clause separating unit,
calculating weight values and the sum of the weight values by
10 respective words, and extracting the word; a word matching
unit for matching the word extracted from the word extracting
unit, with a patent; a patent map drawing unit for drawing a
patent map referring to data matched in the word matching
unit; and a patent map drawing controlling unit for
15 controlling the word extraction object of the extractive
object selection and sentence extracting unit.

In accordance with another aspect of the present
invention, there is provided a system for drawing a patent map
using a technical field word including a storing unit for
20 receiving a download of patent information from at least one
patent information providing site and storing it; an
extractive object selection and sentence extracting unit for
selecting at least one word extraction object and extracting a
sentence of the selected word extraction object from the
25 patent information stored at the storing unit; a clause
separating unit for separating, in a unit of a clause, the
sentence of the extractive object selected at the extractive

object selection and sentence extracting unit; a useless
character eliminating unit for eliminating a useless character
corresponding to an already stored useless word list from the
sentence of a clause unit separated in the clause separating
5 unit, and extracting the sentence of the clause unit which is
gotten by removing the useless character; a word extracting
unit for selectively receiving the sentence based on a unit of
a clause from which the useless character is removed in the
useless character eliminating unit, or the sentence separated
10 in a unit of a clause in the clause separating unit, counting
the number of words, calculating weight values and the sum of
the weight values by respective words, and extracting the
word; a word matching unit for matching the word extracted
from the word extracting unit, with a patent; a patent map
15 drawing unit for drawing a patent map referring to data
matched in the word matching unit; and a patent map drawing
controlling unit for controlling the word extraction object of
the extractive object selection and sentence extracting unit,
and also controlling a selective output of the clause
20 separating unit.

In accordance with further another aspect of the present
invention, there is provided a method of drawing a patent map
which is applied to the patent map drawing system, the method
including the steps of: a) receiving a download of patent
25 information from at least one patent information providing
site and storing it at an inside database; b) selecting at
least one word extraction object and extracting a sentence

from the patent information stored at the inside database; c) separating, in a unit of a clause, the sentence of the selected extractive object; d) eliminating a useless character corresponding to an already stored useless word list from the sentence separated in a unit of a clause, and extracting the sentence of a clause unit which is gotten by removing the useless character; e) selectively receiving the sentence based on a unit of a clause from which the useless character is removed, or the sentence separated in a unit of a clause, counting the number of words, calculating weight values and the sum of the weight values by respective words, and extracting the word; and f) matching the extracted word with a patent, and drawing a patent map.

In accordance with still further another aspect of the present invention, there is provided computer readable recording medium storing instructions for executing a method of drawing a patent map using a technical field word, in a patent map drawing system having a processor, said method comprising the steps of: a) receiving a download of patent information from at least one patent information providing site and storing it at an inside database; b) selecting at least one word extraction object and extracting a sentence from the patent information stored at the inside database; c) separating, in a unit of a clause, the sentence of the selected extractive object; d) eliminating a useless character corresponding to an already stored useless word list from the sentence separated in a unit of a clause, and extracting the

sentence of a clause unit which is gotten by removing the useless character; e) selectively receiving the sentence based on a unit of a clause from which the useless character is removed, or the sentence separated in a unit of a clause, counting the number of words, calculating weight values and the sum of the weight values by respective words, and extracting the word; and f) matching the extracted word with a patent, and drawing the patent map.

Brief Description of the Drawings

The above and other objects and features of the instant invention will become apparent from the following description of preferred embodiments taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a block diagram in one embodiment of a system for drawing a patent map using a technical field word in accordance with the present invention;

Fig. 2 represents a detailed block diagram in one embodiment of a useless character eliminating module shown in Fig. 1;

Fig. 3 depicts a detailed block diagram in one embodiment of a word extracting module shown in Fig. 1;

Fig. 4 is a flowchart of one embodiment for a method of drawing a patent map using a technical field word in accordance with the present invention;

Fig. 5 illustrates a detailed flowchart of one embodiment

for a useless character eliminating procedure shown in Fig. 4;
and

Fig. 6 is a detailed flowchart of one embodiment for a
word extracting procedure which is provided in a word
5 extracting object shown in Fig. 4.

Preferred Embodiment of the Invention

Hereinafter, preferred embodiments of the present
10 invention will be described in detail with reference to the
accompanying drawings.

Fig. 1 is a block diagram in one embodiment of a system
for drawing a patent map using a technical field word in
accordance with the present invention.

As shown in Fig. 1, a system for drawing a patent map
15 includes an inside database 30, a patent map drawing
controlling module 40, an extractive object selection and
sentence extracting module 50, a clause separating module 60,
a useless character eliminating module 70, a word extracting
20 module 80, a word matching module 90 and a patent map drawing
module 95.

The patent map drawing controlling module 40 controls a
general patent map drawing of a patent map drawing system in
response to an inputted selection signal of a user, and also
25 controls an extractive object of the extractive object
selection and sentence extracting module 50 and a word
extraction of the word extracting module 80.

Also, the patent map drawing control module 40 controls so that the clause separating module 60 selectively outputs a sentence separated in a unit of a clause to the word extracting module 80 or to the useless character eliminating module 70 in response to the selection signal of the user.

The inside database 30 receives a download of patent information provided from respective patent information providing sites 10, 11, 12, 3 through respective interlocking equipments 20, 21, 22, 23, and stores it, and provides the extractive object selection and sentence extracting module 50 with the patent information.

Herewith, the patent information stored at the inside database contains bibliographic terms, and also contains the title of the invention, the abstract, the claims and the detailed description of the invention which contain a word, and stores by separating it in respective extractive objects.

The extractive object selection and sentence extracting module 50 selects a corresponding extractive object on the basis of the patent information provided by the inside database 30, extracts a sentence contained into the extractive object, and provides the clause separating module 60 with it.

Herewith, as the extractive object which is typically usable among sentences of the extractive object, it is desirable to use the claims, and in the detailed description of the invention, too much load may be caused to process it by a computer of a slow speed since much time is relatively taken to extract a corresponding sentence. Further, though it is

generally selected one extractive object; terms more than two, namely, the title of the invention and the claims, can be selected as the extractive object according to a necessity of a user.

5 The clause separating module 60 performs a separation for a sentence of the selected extractive object in a unit of a clause, and provides the sentence separated in a unit of a clause to the useless character eliminating module 70 or the word extracting module 80 by the selection signal of the user
10 inputted from the patent map drawing controlling module 40.

That is, the clause separating module 60 performs a separation by a space, in separating the sentence of the extractive object by a unit of a sentence, or performs the separation with special characters, for instance, "/", colon, semicolon, etc. Herewith, the condition of the clause
15 separation is to be selected according to a designation of a user.

In the useless character eliminating module 70, the sentence separated in a unit of a clause, which is provided
20 from the clause separating module 60, is compared with the already stored useless character list, to remove a useless character from the sentence, and the sentence from which the useless character is eliminated is sent to the word extracting module 80.

25 Herewith, the useless word list stored at the useless character eliminating module 70 is provided in a dictionary type, and the inputted sentence based on a unit of a clause is

compared with the useless word list. If a word corresponding to the useless word list exists in the sentence based on a unit of a clause, the corresponding word is removed from the sentence provided under a unit of a clause.

5 Further, in order to remove the useless word exactly, a characteristic of each language should be considered. That is, it is respectively provided a common useless word list corresponding to all of language areas, a useless word list corresponding to Korean language, and a useless word list
10 corresponding to a foreign language, and a sentence based on a unit of a corresponding clause is compared with these lists in sequence, to thereby, preferably extract the sentence from which all unnecessary characters are removed finally. Herewith, a detailed operation in the removal of the useless character
15 will be described more in detail referring to Fig. 2 to be explained later.

The word extracting module 80 receives the sentence based on a unit of a clause from the useless character eliminating module 70 or the clause separating module 60 by a selection of
20 a user inputted from the patent map drawing controlling module 40, extracts useful numerous words from this sentence, calculates a weight value per word by dividing the rest numerous words on the basis of the most many word number among such extracted numerous words, computes the sum of weight for
25 the calculated word, and extracts the word.

Herewith, the word extracting module 80 receives only the sentence based on a unit of a clause, the sentence being

outputted from the clause separating module 60, in case that the useless character eliminating module 70 is not applied to the inventive system. Meantime, in case the sentence of a clause unit is not provided from the clause separating module 60 to the word extracting module 80, the word extracting module 80 receives only the sentence of a clause unit from which the useless character is removed in the useless character eliminating module 70. In such two cases, there is no need a selection signal of the patent map drawing controlling module 40.

The word matching module 90 matches the word extracted by the word extracting module 80 with the patent, and provides the patent map drawing module 95 with the matched word information.

Here, in the word matching procedure, it is general to match the extracted word with the patent in 1 : 1 rate, but it is valid to match in a plural matching of 1 : N by the user. For example, in case one patent contains a word A and a word B more than two, it can be processed by a 1 : 1 matching and it can be also processed by a plural matching of 1 : N which simultaneously contains more than two patents, by comparing whether the word A or the word B is more.

The patent map drawing module 95 draws a patent map by a technical field, a nation, an application period and an applicant on the basis of the patent matched by the word matching module 90.

For instance, it can be classified by collecting patents

corresponding to a "phase modulation" and by dividing them into "BPSK ", "QPSK" and "OCQPSK" etc. in a PSK modulation system, and in again classifying the "QPSK" it can be classified into a "modulation" and a "demodulation". At this
5 time, the classification is performed with data matched with the current inside database 30 and inputted, through a re-classification procedure, and the technical classification based on the patent map drawing can be more fractionalized through a repetitive work.

10 Fig. 2 is a detailed block diagram in one embodiment of the useless character eliminating module shown in Fig. 1.

As shown in Fig. 2, the useless character eliminating module 70 includes a common useless character removing part 72, a Korean language useless character removing part 75, and a
15 foreign language useless character removing part 78. The Korean language useless character removing part 75 is composed of a useless first syllable removing part 73 and a useless end syllable removing part 74, and the foreign language useless character removing part 78 contains a plural type removing
20 part 76 and a capital/small letter equal processing part 77.

The common useless character removing part 72 removes an unnecessary word from the sentence of a clause unit provided from the clause separating module 60 on the basis of the common useless word list which is applied to worldwide
25 languages, and provides the useless first syllable removing part 73 with the sentence from which the common useless word is removed.

That is, the common useless character removing part 72 compares the sentence of a clause unit with the already stored common useless word list, to eliminate the word contained into the common useless word list among the sentences of a clause unit.

For example, in the common useless word list, it is stored a useless word such as "잘", "매우", "그리고" and "또는" etc. in a case of Korean language, a word such as "a", "the", "this", "that", "much" and "little" etc. in a case of English, a word such as "des", "dem" and "den" etc. in a case of German, and a word such as "La" and "De" etc. in a case of French.

Therefore, the common useless character removing part 72 removes the word corresponding to the common useless word list among the sentences of a clause unit provided from the clause separating module 60, and provides the useless first syllable removing part 73 of the Korean language useless character removing part 75 with the sentence from which such word is removed.

The useless first syllable removing part 73 removes the useless word of a first syllable from the sentence of a clause unit which is provided from the common useless character removing part 72 and is gotten by removing the common useless character, and provides the useless end syllable removing part 74 with the sentence from which the useless word of the first syllable is eliminated.

In other words, the useless first syllable removing part 73 eliminates the word corresponding to the first syllable

useless word list among the sentences based on a unit of a clause from which the common useless character is eliminated. For instance, since the first syllable useless word list contains a prefix such as "the extreme" and "the most", it is
5 eliminated the word corresponding to the first syllable useless word list from the inputted sentences based on a unit of a clause.

The useless end syllable removing part 74 eliminates the useless word corresponding to the end syllable useless word
10 list from the sentence of a clause unit which is provided from the useless first syllable removing part 73 and is gotten by removing the useless word of the first syllable, and provides the plural type removing part 76 of the foreign language
15 useless character removing part 78 with the sentence of a clause unit from which the useless word of the end syllable is eliminated.

Herewith, in Korean language the end syllable useless word list contains "을" and "를" as an objective postposition, "의" as a pre-noun type postposition, "는" and "은" as a
20 subjective postposition, and also contains useless words such as "하는", "하고" and "하여" etc. which correspond to the ending of a word of a verb. Thus, the word corresponding to the end syllable useless word list is removed from the sentence of a clause unit from which the useless word of the first syllable
25 is removed.

The plural type removing part 76 eliminates the useless

word corresponding to the plural type useless word list from the sentence of a clause unit from which the useless word of the end syllable is removed in the useless end syllable removing part 74, and provides the capital/small letter equal processing part 77 with the sentence of a clause unit from which this plural type useless word is removed.

Herewith, the plural type useless word list contains "s" and "es" as a plural type in English, and also contains useless words of a plural type for French, German and Japanese under the same conception. Therefore, the word corresponding to the plural type useless word list is eliminated from the sentence of a clause unit from which the useless word of the end syllable is removed.

The capital/small letter equal processing part 77 processes, as the same word, the word corresponding to the same word list among the sentences of a clause unit from which this plural type useless words are removed in the plural type removing part 76. Then, the capital/small letter equal processing part 77 provides the word extracting module 80 with the sentences of a clause unit which are processed as the same word.

Fig. 3 is a detailed block diagram in one embodiment of the word extracting module shown in Fig. 1.

As shown in Fig. 3, the word extracting module includes a respective-words counting part 82, a weight value calculating part 83, a word weight value sum calculating part 84, a useless word removing part 85 and a word extracting part 86.

The respective words counting part 82 receives the sentence of a clause unit from which the useless word from the useless character eliminating module 70 is removed, or the sentence separated in a unit of a clause by the clause separating module 60, and counts the number per word in a corresponding sentence, and sends counting information per the corresponding word to the weight value calculating part 83.

The weight value calculating part 83 calculates a weight value of the rest words by a counting value of a word having the most many counting number, namely, a word having the most many frequency number among the sentences, referring to counting information per corresponding word which is provided from the respective word counting part 82. Also, the weight value calculating part 83 sends the calculated weight value information per word to the word weight value sum calculating part 84.

For example, assuming that in a first patent, it is represented a word A by twenty times, a word B by fifteen times, a word C by ten times and a word D by five times, at this time a word corresponding to the highest frequency number becomes the word A. Since this word A is represented twenty times, the rest words are divided by 20 which is the value of the highest frequency number. As its result, the word A becomes 1, the word B 0.75, the word C 0.5, and the word D 0.25. At this time, 1 of the word A, 0.75 of the word B, 0.5 of the word C and 0.25 of the word D become the weight value.

Also, assuming that the frequency number of the word is

checked in a second patent and its result is represented the word A by five times, the word B by ten times, the word C by zero time, the word D by five times and a word F by five times; at this time, when the weight value is gotten by
5 dividing by the highest frequency number 10 of word, the word A becomes 0.5, the word B becomes 1, the word C becomes 0, the word D 0.5, and the word F 0.5. Therefore, the weight value information per word of a corresponding patent is generated by applying such method to respective patents, and such generated
10 weight value information per word is provided to the word weight value sum calculating part 84.

The word weight value sum calculating part 84 computes the sum of the weight value information per word by using the respective word weight information of a corresponding patent
15 provided from the weight value calculating part 83, and represents the calculated sum of weight value through an outside display, and sends the calculated respective word weight value sum information to the useless word removing part 85 or the word extracting part 86 according to a selection
20 signal inputted from the patent map drawing controlling module 40.

That is, the user clarifies the sum of the respective word weight value information represented through the display, and selects a simple range selection mode through the patent
25 map drawing controlling module 40. Then, only the word provided within the range that the user determines on information of the words A, B, D, F and C by an order of the

weight values is sent to the word extracting part 86; for instance, when the user selects only the words A, B and D, only a corresponding word is sent to the word extracting part 86.

5 Further, the user clarifies the sum of the respective word weight value information represented through the display, and selects the useless word removing mode through the patent map drawing controlling module 40, and also selects the useless word to be eliminated. Then, the word weight value sum
10 calculating part 84 sends the calculated respective word weight value sum information and the selected word removing information to the useless word removing part 85. At this time, the useless word removing part 85 removes the word selected by the user, from the word of the respective word weight value
15 sum information, and sends only the rest words to the word extracting part 86.

For example, in analyzing 50 patents, and in case that the sum of the weight values becomes 40 in the word A, 20 in the word B, 7 in the word C, 20 in the word D and 10 in the
20 word F, and that the words A, B, D, F and C are inputted to the useless word removing part 85 by an order of the weight values, the useless word removing part 85 eliminates the word designated as unnecessary word even though it is the word having a high weight value by the selection of the user.
25 Therefore, when the words A, B and F are designated as the useless words by the user, the useless word removing part 85 provides the word extracting part 86 with only the rest words

B, F and C.

Though it was here provided for the user to selectively determine a simple range selection mode or a useless word removing mode, it will be more desirable to extract only a word which can satisfy all two modes as the simple range selection mode or the useless word removing mode.

The word extracting part 86 extracts the corresponding word on the basis of the word weight value sum information inputted through the word weight value sum calculating part 84 or the word weight value sum information which is inputted through the useless word removing part 85 and is gotten by eliminating the useless words. Then, the word extracting part 86 sends it to the word matching module 90.

Fig. 4 is a flowchart of one embodiment for a method of drawing the patent map using the technical field word in accordance with the present invention.

Patent information provided from respective patent information providing sites 10, 11, 12, 13 is down-loaded through respective interlocking equipments 20, 21, 22, 23, and is stored at the inside database 30. After that, the extractive object selection and sentence extracting module 50 selects a corresponding extractive object from the patent information provided from the inside database 30 by a control signal of the patent map drawing controlling module 40, and extracts the sentence contained into the extractive object, and sends it to the clause separating module 60.

Herewith, the patent information stored at the inside

database 30 contains bibliographic terms, and also includes the title of the invention containing a word, the abstract, the claims and the detailed description of the invention, and these are classified into individual extractive objects and stored.

A sentence of the extractive object selected through the clause separating module 60 is separated in a unit of a clause in a step 200, and it is decided whether a useless character is removed from the sentence separated in a unit of a clause in a step 300.

As a decision result of the step 300, in case that the useless character is removed from the sentence separated in a unit of a clause, the sentence separated in a unit of a clause is provided to the useless character eliminating module 70, to eliminate a corresponding useless character referring to a useless word list of the useless character eliminating module 70, and is progressed to a step 500 of extracting the word provided in the separated sentence according to a weight value.

As the decision result of the step 300, in case that the useless character is not removed from the sentence separated in a unit of a clause, it is progressed to the step 500 of extracting the word provided in the separated sentence according to the weight value.

That is, in case the useless character is removed, the useless character among the sentences separated in a unit of a clause in the clause separating module 60 is eliminated in the useless character eliminating module 70, and the sentence of a

clause unit from which this useless character is removed is sent to the word extracting module 80. Herewith, since the useless character eliminating module 70 stores the useless word list or a word dictionary, the useless character eliminating module 70 compares the inputted sentence of a clause unit with the useless word list, to thereby remove unnecessary characters. Since characteristics on respective languages are different from each other, it is preferably noded to respectively provide a useless word list corresponding to all of language areas, a useless word list corresponding to Korean language, and a useless word list corresponding to a foreign language, and also, a corresponding sentence of a clause unit and these lists are compared with each other in sequence, to thereby, finally eliminate unnecessary characters.

While, in the step 500, the sentence of a clause unit from which the useless character is removed is received from the useless character eliminating module 70, or the sentence separated in a unit of a clause is received from the clause separating module 60, and in this sentence, numerous useful words are extracted. Also, on the basis of the most many words number among these extracted numerous words, the rest numerous words are divided to calculate the weight value per word, and the weight value sum of the calculated word is computed to extract the word in the step 500. This extracted word is matched with a patent by the word matching module 80, and a patent map is drawn on the basis of the matched information in

a step 600.

Herewith, it is general to match the extracted word and the patent in 1 : 1, but it is valid to match by a plural matching of 1 : N by the user. For example, in case one patent
5 contains a word A and a word B more than two, it is compared whether the word A is more or the word B is more, to thereby enable to perform the 1 : 1 matching process and also perform the plural matching of 1 : N containing two simultaneously.

Further, in the drawing of the patent map, the patent map
10 is drawn by respective technical field, nation, application period and applicant on the basis of the classified words.

Fig. 5 is a detailed flowchart of one embodiment for a useless character eliminating procedure shown in Fig. 4.

As shown in Fig. 5, an unnecessary word corresponding to
15 the common useless word list of the common useless character removing part 72 is removed from the sentence separated in a unit of a clause through the clause separating module 60, and the sentence having a removal of the common useless word is sent to the useless first syllable removing part 73 in a step
20 410.

Then, in the sentence of a clause unit having the removal of the common useless character, a word corresponding to a first syllable useless word list is eliminated from the sentence of a clause unit through the useless first syllable
25 removing part 73, and the sentence having the removal of this first syllable useless word is sent to the useless end syllable removing part 74.

At this time, in the sentence having the removal of the word corresponding to the first syllable useless word list, a word corresponding to the end syllable useless word list is removed through the useless end syllable removing part 74, and the sentence of a clause unit having the removal of the this end syllable useless word is sent to the plural type removing part 76 of the foreign language useless character removing part 78 in a step 430.

Also, the useless word which corresponds to the plural type useless word list is removed from the sentence of a clause unit which has the removal of the end syllable useless word in the step 430, through the plural type removing part 76. Among the sentences of a clause unit having the removal of this plural type useless word, the word corresponding to the same word list is processed as the same word through the capital/small letter equal processing part 77 in a step 440, and the sentence of a clause unit which is processed as the same word is sent to the word extracting module 80.

Fig. 6 is a detailed flowchart of one embodiment for the word extracting procedure which is provided in the word extracting object shown in Fig. 4.

As shown in Fig. 6, it is inputted the sentence of a clause unit having the removal of the useless character through the useless character eliminating module 70, or the sentence separated in a unit of a clause through the clause separating module 60. Also, the number per word for a corresponding sentence is counted through the respective word

counting part 82, and counting information per corresponding word is sent to the weight value calculating part 83 in a step 510.

After that, with reference to the counting information per corresponding word which is provided in the step 510, the weight value of the rest words is computed by a counting value having the most many counting number of a word, namely, the highest frequency number among the sentences in a step 520.

And then, the weight value information per word calculated in the step 520 is sent to the word weight value sum calculating part 84, to compute as the sum of the weight value information per word, and on the basis of the sum of the weight value information per word, it is decided whether the useless word removing mode will be performed, or the simple range selection mode will be performed, in a step 540.

In the decision result of the step 540, in case that the user clarifies the respective word weight value sum information which is represented through the display, and selects the simple range selection mode, the respective word weight value sum information is provided to the word extracting part 86 in an order of the weight values, to extract the weight value sum information provided within the range selected by the user in a step 560.

In the decision result of the step 540, in case that the user clarifies the respective word weight value sum information and selects the useless word removing mode, the calculated respective word weight value sum information is

provided to the useless word removing part 85. Therefore, the useless word removing part 85 eliminates the word selected by the user from the words of the respective word weight value sum information, and after that, extracts the weight value sum information in a step 550. Then, it is progressed to a step 600 of drawing the patent map on the basis of the extracted word.

A method of the present invention above-described can be embodied as a program, and this program can be stored at a record medium such as a CDROM, a RAM, a ROM, a floppy disk, a hard disk, and an optical magnetic disk etc., the record medium being read through a computer.

As afore-mentioned, in accordance with the present invention, a weight value of an important word having a removal of unnecessary word from patent data is calculated, to thus draw a patent map and to thereby enable to draw an exact patent map complying with a requirement of a user.

In addition, in the present invention, since a person who executes a patent map work doesn't have to see the specifications one by one, a drawing time of the patent map can be shortened in epoch-making and a convenience for the user can be improved considerably.

It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without deviating from the spirit or scope of the invention. Thus, it is intended that the present invention cover the modifications and variations of this

invention provided they come within the scope of the appended claims and their equivalents.